9189

Diagram No. 4190

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey Hydrographic
Field No. SU-5-1-71
Office No. H-9189

LOCALITY

State American Samoa
General Locality Tutuila Island
Locality Pago Pago Harbor

1971

CHIEF OF PARTY
CDR A.R.Benton

LIBRARY & ARCHIVES

DATE October 4, 1984

☆U.S. GOV. PRINTING OFFICE: 1976—669-441

9189

FORM C&GS-537 (8-15-59)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

REGISTER NO.

H 9189

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

SU-5-1-71

State American Samoa

General locality Tutuila Island

Locality Pago Pago Harbor

Scale 1:5,000 Date of survey March - April 1971

Instructions dated 18 December 1970 Project No. OPR-497-SU-71

Vessel NOAA Ship SURVEYOR

Chief of party A.R. Benton, Jr., CAPT, NOAA

Surveyed by A.E. Theberge, Jr., LTJG, NOAA and H.L. Parry, LTJG, NOAA

Soundings taken by echo sounder, hand lead, pole DE-723C, hand lead, and pole

Graphic record scaled by Ship's Survey Department

Graphic record checked by A.E. Theberge, Jr., F.J. Jones, M.R. Johnson, W.M. Rivers

Protracted by A.E. Theberge, Jr., H.L. Parry Smooth sheet ~~Automatic plot~~ by PMC

Boat sheet inked ~~Soundings penciled~~ by F.J. Jones, A.E. Theberge, Jr., H.L. Parry - Smooth sheet soundings automated print by PMC

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: Two copies of boatsheet SU-5-1-71 were used during the survey. The vast majority of soundings are plotted on SU-5-71 (1). Shoreline verification, aids to navigation, pole soundings, and lead line soundings are plotted on SU-5-1-71 (2)

USCOMM-DC 19086-P65

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY

SU-5-1-71

NOAA Ship SURVEYOR

FALL (MARCH - APRIL) 1971

SCALE 1:5,000

Arthur R. Benton, Jr. Commanding

A. PROJECT

This survey, Project OPR-497-SU-71 Pago Pago Harbor, Tutuila Island, American Samoa was executed in accordance with instructions issued by the Director, Pacific Marine Center, dated 18 December 1970.

B. AREA SURVEYED

It is bounded by the shoreline of Pago Pago Harbor. Seaward of the mouth of the harbor it is bounded on the east by Longitude 170° 39' 07" W, on the south by Latitude 14° 18' 25" S and on the west by Longitude 170° 40' 45" W.

C. SOUNDING VESSEL

All soundings were made by the ship's boats. The vast majority of the lines, including all of the main scheme, were run by launch SU-3 (launch color blue, assigned position numbers 2000 - 3999 and 9000 - 9999. Shoreline and two small shoal water areas, one in Fagaalu Bay and one behind Amuula Rock, were run by Skiff #544 (vessel color orange, assigned position numbers 1 - 499). Development on the shoal off Fagaalu Bay, a few isolated splits, location of aids to navigation, and least depth on Whale and Grampus Rocks were surveyed by Launch SU-4 (launch color green, assigned positions numbers 4000 - 4999). LCVP SU-5 (vessel color brown, assigned position numbers 500 - 999)gathered all bottom samples.

D. SOUNDING EQUIPMENT

Two DE 723C Raytheon fathometers were used in the surveyed area. Launch SU-3 used DE 723C #939 every day of the survey except Julian Day 89 when DE 723C #938 was installed. Launch SU-4 on JD 105 used DE 723C #938. Echo sounder corrections were based on daily bar checks and a Nansen cast. Although numerous breakdowns of the fathometer occurred, none of these breakdowns should have affected the accuracy of the soundings.

E. SMOOTH SHEET AND BOAT SHEET

The smooth sheet is to be plotted by electronic methods.

Field plotting was done on two copies of the boat sheet, SU-5-1-71(1) and SU-5-1-71(2). All launch soundings are shown on copy 1; verified shoreline, choreline changes, floating aids to navigation, and skiff soundings are shown on copy 2. These boat sheets are constructed on thin mylar. Latitudes and longitudes intersection ticks and triangulation station positions will be plotted by EDAT.

According to Projects Branch, PMC, the projection shown on the boat sheet is based on the 1962 American Samoa Datum. This differs by 7.88 seconds of latitude (subtracted from 1962 to obtain 1927) and 0.48 seconds of longitude (add to 1962 to obtain 1927) from the North American 1927 Datum upon which the current nautical chart is based.

At the request of Project Branch, PMC, all soundings were recorded and shown on the boat sheet in feet.

F. CONTROL

All navigational control on sheet SU-5-1-71(1) was by means of horizontal three-point sextant fixes. The position source for all hydrographic signals is included on the list of signals. See Appendix

G. SHORELINE

Shoreline details were obtained from a field edit of topographic sheet T-13418. Reefline was verified by plotting on sheet SU-5-1-71(2) visual fixes taken from a skiff lying directly alongside the reef. The reef, where it differs from that depicted on the T-sheet, was sketched between fix points; changes from the T-sheet were transferred to the field edit ozalid.

Areas in which substantial change have occurred since the dates of photography and inspection are as follows:

1. The inner harbor west of 170° 51' 15" W.
2. Fagaalu Bay.
3. The eastern shore of the harbor between Anasosopo and Tafagamanu Points.

The above changes in shoreline were delineated by planetable surveys on topo sheets SU-D-71 and SU-E-71.

H. CROSSLINES

The percentage of crosslines run was 8.2% as compared to main scheme survey lines. No notable discrepancies were observed. The crossline

extended between positions 3961 to 3967 at first glance appears to have some erratic values but the bottom topography in this area is extremely rough.

I. JUNCTIONS

The junction soundings with the contemporaneously surveyed area to the south compared quite favorably. Existing discrepancies of a few feet probably result from comparison of soundings in feet to soundings in whole fathoms.

J. COMPARISON WITH PRIOR SURVEYS

Not required. See instructions, paragraph 14.

K. COMPARISON WITH THE CHART

In comparing the boat sheet with C&GS Chart 4190 (1:15,000 scale), it was found in most cases that the old lead-line survey displayed less shoal depths than those found by the new survey. The general configuration of the bottom is not as irregular as that shown on the chart. In vertical cross-section the harbor is a U-shaped trough bounded by a steep reef on each side. The bottom of the harbor has a gradient of approximately 40 feet per mile deepening towards the open sea.

The most notable discrepancy between charted soundings and those found during this survey is the 10 fathom shoal located at 14° 17' 23.1" S and 170° 40' 16.2" W on the chart. Although no lines passed directly over the charted position of this reported shoal, lines passed within 15 meters of the charted position. No indication of a shoal was seen on fathometer records either as a rise on the relatively flat bottom or as a side echo. It is felt that no shoal exists at this point.

No indication was seen of the 16 fathom peak located at 14° 18' 07.6" S and 170° 40' 17.3" W, the 17 fathom peak located at 14° 17' 48.0" S and 170° 39' 56.2" W, the 18 fathom peak located at 14° 17' 40.9" W and 170° 39' 51.3" W, the 20 fathom peak located at 14° 17' 27.5" S and 170° 39' 53.8" W, the 19 fathom peak located at 14° 17' 24.0" S and 170° 40' 0.3" W and the 15 fathom peak located at 14° 16' 37.2" S and 170° 40' 27.3" W. All above geographic positions are based on the 1962 American Samoa Datum.

Over both Whale Rock and Grampus Rock the old survey showed shoaler depth than those found by the SURVEYOR's diver. The diver first searched out the shoalest point and then placed a sounding lead on this point so that surface personnel could pull the leadline vertical and read the depth. The least depths determined by this method were 16 feet at Whale Rock and 9 feet at Grampus Rock as opposed to 12 feet and 2 feet respectively as shown on C&GS 4190.

A sunken vessel which appears to have broken in half lies in 156 feet of

water off the fuel pier. Shoalest depth over this wreck is 80 feet. One half lies 130 yards north of, and parallel to, the fuel pier; the other half is oriented north-south and extends from 120 yards to 200 yards north of the west corner of the fuel pier.

L. ADEQUACY OF SURVEY

The survey is complete and adequate to supersede prior surveys for charting.

The location of the wreck shown on the reef northeast of signal #20 is an approximate position. No fixes were taken to establish the exact position of this wreck. Its location does not present a hazard to nagivation.

M. AIDS TO NAVIGATION

The positions of all aids to navigation which were located during this survey have been tabulated on C&GS Form 567.

A comparison was made between the charted position of these aids and the positions found during the present survey. After accounting for datum differences it was found that Goat Island North Daybeacon, Pago Pago Inner Harbor Daybeacon, and floating aids to navigation other than the mooring buoys agree within fractions of a second of the charted positions.

Three mooring buoys are shown on the chart. Four exist. The charted positions of the three buoys do not correlate with the positions of any of the four existing buoys.

Comparing the geographic positions of aids to navigation with those found in the Coast Guard Light List, numerous differences exist. Using the North American Datum Of 1927 on which Chart C&GS 4190 is based, these differences were observed:

	Coast Guard		C&GS Chart No. 4190 and present Survey	
Breakers Pt. Light	14° 17.4'	170° 39.7'	14° 17.5'	170° 39.7'
Range Front Light	14° 16.1'	170° 40.3'	14° 16.3'	170° 40.4'
Whale Rock Lighted Bell Buoy #1	14° 17.2'	170° 40.0'	14° 17.3'	170° 40.1'
Observatory Pt. Light	14° 16.6'	170° 40.6'	14° 16.7'	170° 40.8'
Pago Pago Inner Harbor Daybeacon	14° 16.5'	170° 41.2'	14° 16.7'	170° 41.4'

There is a discrepancy in the naming of the Observatory Point Light in the Coast Guard Light List. This light is located on Goat Island Point. No Observatory Point is labeled or known within the charted area.

N. STATISTICS

Total number of positions	2416
Nautical miles of sounding line	178.1 n.m.
Total area in square nautical miles	1.91
Number of bottom samples	89
Number of current stations	1
Number of T and S casts applicable to velocity data for sheet	1
Number of bar check observations	45
Number of magnetic stations	4
Number of tide gages within sheet area	1

O. OTHER OBSERVATIONS

1. Bottom samples - Bottom samples were obtained by means of a 15cc clamshell snapper sampler.

2. Current stations - One pole current station was observed and was located at 14° 17.8' S and 170° 40.2' W (1962 American Samoa Datum) where a temporary mooring buoy was anchored. Observations were made from a 16 foot skiff with a 15 foot pole.

3. Nansen casts - Temperature and salinity data for velocity corrections were obtained from a Nansen cast taken at Lat. 14° 20' 40" S and Long. 170° 39' 40" W. This was taken out of the area encompassed by sheet SU-5-1-71. A minor shifting of the curve obtained from this data was required for agreement with the bar check data obtained by Launch SU-3.

4. Magnetic stations - Four magnetic stations for determining magnetic variation were observed at offsets from stations LaoLao, Pule Gas, Marist, and Breakers Point Light.

5. Tide gages - The only tide gage within the area covered by SU-5-1-71 is the standard gage located on the Pago Pago Harbor fuel pier.

P. MISCELLANEOUS

At Fagaalu Bay a good protected small boat anchorage exists. A channel, approximately 100 feet wide and 30 feet deep, dissects the reef. A small lagoon approximately 150 meters in diameter and 20 to 30 feet deep lies behind the break in the reef. A small arm of the reef on the north side of the entrance channel extends approximately 30 feet out into the channel. This is easily bypassed when the water is clear. However, after a heavy rain the lagoon and channel become extremely turbid as a small stream discharges into Fagaalu Bay. If the need ever did arise to use this bay for a small boat anchorage, it would be a relatively small matter to mark the channel to minimize the turbidity problem.

Whale Rock, Grampus Rock, and the shoal area due east of Fagaalu Bay rise from approximately 190 feet of water to a few feet below the surface with slopes of approximately 60°. These features are similar in

configuration to features first described by Emery (1948) and Shepard (1948) and found in the lagoon back of Bikini atoll. Emery termed these features coral knolls while Shepard considered them a fourth basic type of coral growth (the others being barrier reefs, fringe reefs, and atolls) which he called a pinnacle. According to our ships' diver, Whale Rock and Grampus Rock are capped by coral. It is not known whether the bases of these rocks are of volcanic or organic origin. If of organic origin, these features would be similar to Shepards pinnacles and would be fine examples of a geomorphically rare feature.

Albert E. Theberge Jr.

Albert E. Theberge, Jr.
LTJG, NOAA

Geographical Names Report (Tutuila Island, American Samoa

Survey Sheets SU-10-1-71 and SU-5-1-71)

To establish the correct geographical names in the area, Mr. Uhrle of the Pago Pago Port Authority and Mr. Sekeli Tauoa of the Public Works Department, Land Survey Branch, were consulted. C&GS chart 4190 and T-sheet #T 13418 were scanned to determine additional geographical names and/or corrections to the printed names. The following additions and corrections were noted:

1. Coconut Point or Mulinu'u Pt (Samoan)

   This name applies to the spit of land forming the eastern boundary of Pala Lagoon, near the Pago Pago Airport. This location was not named on Chart #4190.

2. Maugaoali'i Ridge

   This is apparently a spelling error on the T-sheet, which uses Maugaaali'i Ridge.

3. Atuu

   A small village located between the villages of Anua and Leloaloa.

APPROVAL SHEET

The survey procedures were monitored and the plot examined daily during the progress of this project. The results are considered adequate for charting purposes at the intended scale. The survey sheet(s) and the accompanying records have been inspected by me and are approved.

Arthur R. Benton, Jr.
CAPT, NOAA
Commanding Officer
NOAA Ship SURVEYOR

FORM C&GS-22111
USCOMM-DC 34135-P71

TIDES: HIGH AND LOW WATERS

Station: PAGO PAGO, AMERICAN SAMOA — Lat. ____

Time Meridian 165°W — Height Datum 2.4 ft below MLW — Long. ____

Highest Tide: Date 24,25 — Height 6.4 feet

Year 1971 Month APRIL — Lowest Tide: Date 22, 23, 24, 25 — Height 2.4 feet

DAY	MOON'S TRANSIT GMT	TIME OF HW	TIME OF LW	LUNITIDAL INTERVAL HW	LUNITIDAL INTERVAL LW	HEIGHT OF HW	HEIGHT OF LW
	hours	hours	hours	hours	hours	feet	feet
1	.	0.5	6.5	.	.	5.2	3.1
	.	13.1	19.3	.	.	5.7	3.0
2	.	1.5	7.4	.	.	5.2	3.2
	.	14.1	20.1	.	.	5.6	3.1
3	.	2.2	8.2	.	.	5.2	3.2
	.	14.9	21.1	.	.	5.6	3.0
4	.	3.0	9.1	.	.	5.2	3.1
	.	15.4	21.8	.	.	5.5	3.0
5	.	3.9	10.1	.	.	5.3	3.1
	.	16.3	22.7	.	.	5.5	3.0
6	.	4.6	10.9	.	.	5.4	3.2
	.	17.0	23.0	.	.	5.5	3.1
7	.	5.3	11.7	.	.	5.5	3.2
	.	17.4	23.4	.	.	5.5	3.1
8	.	6.0	11.9	.	.	5.5	3.2
	.	17.9	—	.	.	5.5	—
9	.	6.3	0.0	.	.	5.5	3.1
	.	18.9	12.5	.	.	5.5	3.1
10	.	7.0	0.6	.	.	5.5	3.1
	.	19.7	13.0	.	.	5.4	3.2
11	.	7.9	1.3	.	.	5.6	3.2
	.	20.2	13.8	.	.	5.3	3.1
12	.	8.7	2.0	.	.	5.5	3.2
	.	20.6	14.6	.	.	5.2	3.0
13	.	9.0	2.4	.	.	5.6	3.2
	.	21.5	15.1	.	.	5.1	3.1
14	.	10.0	3.3	.	.	5.6	3.2
	.	22.4	16.0	.	.	5.1	3.2
15	.	10.4	4.1	.	.	5.6	3.3
	.	23.5	16.9	.	.	5.0	3.2
16	.	11.8	5.0	.	.	5.5	3.1
	.	—	18.3	.	.	—	3.1
17	.	0.5	6.1	.	.	5.1	3.2
	.	12.7	18.9	.	.	5.6	3.1

DAY	MOON'S TRANSIT GMT	TIME OF HW	TIME OF LW	LUNITIDAL INTERVAL HW	LUNITIDAL INTERVAL LW	HEIGHT OF HW	HEIGHT OF LW
	hours	hours	hours	hours	hours	feet	feet
18	.	1.5	7.2	.	.	5.3	3.2
	.	13.6	20.0	.	.	5.7	2.9
19	.	2.0	7.9	.	.	5.5	3.1
	.	14.4	21.1	.	.	5.9	2.8
20	.	3.1	9.0	.	.	5.7	2.9
	.	15.3	21.9	.	.	6.0	2.6
21	.	4.0	9.8	.	.	5.9	2.7
	.	16.4	22.5	.	.	6.2	2.5
22	.	4.9	11.1	.	.	6.1	2.5
	.	17.2	23.2	.	.	6.2	2.4
23	.	5.9	12.0	.	.	6.3	2.4
	.	18.1	—	.	.	6.2	—
24	.	6.7	0.1	.	.	6.4	2.4
	.	19.1	12.8	.	.	6.1	2.4
25	.	7.8	1.0	.	.	6.4	2.5
	.	20.0	13.7	.	.	6.0	2.4
26	.	8.6	2.0	.	.	6.3	2.5
	.	21.0	14.5	.	.	5.8	2.5
27	.	9.4	2.8	.	.	6.2	2.7
	.	22.0	15.6	.	.	5.5	2.6
28	.	10.3	3.9	.	.	5.9	2.9
	.	22.8	16.7	.	.	5.5	2.7
29	.	11.3	4.6	.	.	5.9	3.1
	.	23.8	17.5	.	.	5.3	2.9
30	.	12.0	5.9	.	.	5.6	3.2
	.	—	18.7	.	.	—	2.9
31	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
		−139.7	1104.0	744.0		58	58
		Sums	696.4	686.1	-267.9	81.8	326.2	171.1
		Means			-4.62	1.41	5.62	2.95
		Greenwich Interval			6.38	12.41	.	
		Lunar Interval			.	.	2.67	Mn
		Local Interval			.	.	4.28	MTL

REMARKS

	Mn	DHQ	DLQ		HHW	LLW
Observed	.	0.15	0.05			
Factor	.	.	.	Sums	167.2	94.1
Corrected	.	.	.	Means	5.77	2.90

Tabulated by K Chan 7/21/71 — .

Reduced by K Chan 7/21/71 — . Cr

FORMERLY
FORM C&GS-2211
USCOMM-DC 34175-P71

TIDES: HIGH AND LOW WATERS

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Station: PAGO PAGO, AMERICAN SAMOA Lat.

Time Meridian 165°W Height Datum 24 ft. below MLLW Long.

Highest Tide: Date 27,28 Height 6.3 feet

Year 1971 Month MARCH Lowest Tide: Date 25,26 Height 2.3 feet

DAY	MOON'S TRANSIT GMT	TIME OF HW	TIME OF LW	LUNITIDAL INTERVAL HW	LUNITIDAL INTERVAL LW	HEIGHT OF HW	HEIGHT OF LW
	hours	hours	hours	hours	hours	feet	feet
1	.	11.2	4.6	.	.	5.8	2.8
	.	23.6	17.4	.	.	5.4	2.6
2	.	12.2	5.6	.	.	5.7	2.8
	.	—	18.6	.	.	—	2.8
3	.	0.6	6.7	.	.	5.3	3.0
	.	13.4	20.1	.	.	5.5	2.9
4	.	2.0	8.1	.	.	5.1	3.0
	.	14.5	20.8	.	.	5.5	2.9
5	.	2.8	8.9	.	.	5.0	3.0
	.	15.3	21.6	.	.	5.5	2.9
6	.	3.6	9.6	.	.	5.1	3.0
	.	16.1	22.4	.	.	5.6	2.9
7	.	4.4	10.4	.	.	5.2	2.9
	.	16.8	23.0	.	.	5.6	2.8
	.	5.1	10.9	.	.	5.2	2.9
	.	17.5	23.8	.	.	5.6	2.9
9	.	5.7	11.7	.	.	5.2	2.9
	.	18.0	—	.	.	5.5	—
10	.	6.4	0.3	.	.	5.3	2.9
	.	18.6	12.3	.	.	5.6	3.0
11	.	7.1	0.8	.	.	5.4	3.0
	.	19.3	12.7	.	.	5.4	3.0
12	.	7.6	1.6	.	.	5.4	3.0
	.	19.7	13.6	.	.	5.3	3.0
13	.	8.2	1.9	.	.	5.3	3.0
	.	20.2	14.1	.	.	5.3	3.1
14	.	8.6	2.5	.	.	5.3	3.1
	.	21.2	14.7	.	.	5.1	3.1
15	.	9.6	3.3	.	.	5.2	3.2
	.	22.0	15.7	.	.	5.0	3.2
16	.	10.0	3.6	.	.	5.2	3.2
	.	22.6	16.4	.	.	4.8	3.2
17	.	10.9	4.6	.	.	5.2	3.3
	.	23.7	17.2	.	.	4.9	3.3

DAY	MOON'S TRANSIT GMT	TIME OF HW	TIME OF LW	LUNITIDAL INTERVAL HW	LUNITIDAL INTERVAL LW	HEIGHT OF HW	HEIGHT OF LW
	hours	hours	hours	hours	hours	feet	feet
18	.	12.0	5.4	.	.	5.3	3.4
	.	—	18.3	.	.	—	3.3
19	.	0.7	6.4	.	.	4.9	3.3
	.	12.9	19.7	.	.	5.3	3.2
20	.	1.6	7.6	.	.	5.1	3.2
	.	14.1	20.6	.	.	5.5	3.1
21	.	2.5	8.5	.	.	5.1	3.1
	.	14.7	21.5	.	.	5.7	2.9
22	.	3.6	9.3	.	.	5.2	2.9
	.	15.7	22.4	.	.	6.0	2.7
23	.	4.4	10.5	.	.	5.6	2.7
	.	16.7	23.1	.	.	6.2	2.5
24	.	5.3	11.3	.	.	6.0	2.5
	.	17.5	23.8	.	.	6.2	2.4
25	.	6.0	12.1	.	.	6.1	2.3
	.	18.2	—	.	.	6.2	—
26	.	6.6	0.5	.	.	6.2	2.4
	.	19.0	12.8	.	.	6.2	2.3
27	.	7.5	1.3	.	.	6.3	2.4
	.	20.1	13.8	.	.	6.1	2.4
28	.	8.7	2.4	.	.	6.3	2.5
	.	21.3	14.9	.	.	5.9	2.6
29	.	9.6	3.4	.	.	6.1	2.8
	.	22.4	16.1	.	.	5.6	2.8
30	.	10.7	4.3	.	.	5.9	2.8
	.	23.5	17.1	.	.	5.3	2.8
31	.	11.7	5.5	.	.	5.8	2.9
	.	—	18.4	.	.	—	2.9
		-193.0	.	.	60	59	60
		Sums	748.0	710.5	-283.0	87.5	325.6	173.7
		Means			-4.72	1.46	5.52	2.90
		Greenwich Interval			6.28	12.4 (0.0 ?)	.	
		Lunar Interval			.		2.62	Mn
		Local Interval			.	.	4.2	MTL

REMARKS

	Mn	DHQ	DLQ		HHW	LLW
Observed	.	.	.			
Factor	.	.	.	Sums	.	.
Corrected	.	.	.	Means	.	.

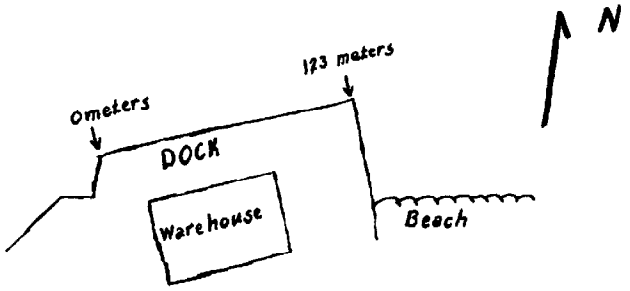
Tabulated by S. Shuber 6/7/71 .

Reduced by S. Shuber 6/7/71 . Cr

Tide Note

Tide corrections for this entire sheet should be applied from heights observed at Standard Gage in Pago Pago Harbor. Tabulated times and heights of high and low waters for the appropriate period follow. The height datum is 2.4 feet below MLW for this data.

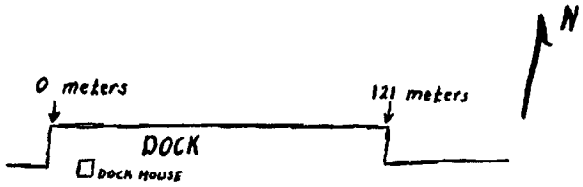
LEADLINE DEPTHS ALONG FACE OF MAIN DOCK
PAGO PAGO HARBOR AMERICAN SAMOA



0930 165th Meridan Time 10 April 1971

Station Meters	Uncorrected Depth - Feet	Corrected Depth - Feet	Station Meters	Uncorrected Depth - Feet	Corrected Depth - Feet
0	37	34 ½	70	32	29 ½
5	32	29 ½	75	30	27 ½
10	32	29 ½	80	30	27 ½
15	29	26 ½	85	32	29 ½
20	29	26 ½	90	30	27 ½
25	28	25 ½	95	32	29 ½
30	28	25 ½	100	32	29 ½
35	29	26 ½	105	34	31 ½
40	28	25 ½	110	36	33 ½
45	29	26 ½	115	38	35 ½
50	32	29 ½	120	40	37 ½
55	32	29 ½	123	44	41 ½
60	32	29 ½			
65	32	29 ½			

LEADLINE DEPTHS ALONG FACE OF STANDARD OIL DOCK PAGO PAGO HARBOR AMERICAN SAMOA



1400 165th Meridan Time 13 April 1971

Station Meters	Uncorrected Depth-Feet	Corrected Depth-Feet	Station Meters	Uncorrected Depth-Feet	Corrected Depth-Feet
0	33	32	70	36	35
5	31	30	75	36	35
10	35	34	80	37½	36½
15	32½	31½	85	36	35
20	34	33	90	36½	36½
25	35	34	95	37½	36½
30	33	32	100	37	36
35	33½	32½	105	36	35
40	34	33	110	39	38
45	38	37	115	36½	35½
50	37½	36½	120	32½	31½
55	38	37	121	32½	31½
60	39	38			
65	38	37			

LIST OF SIGNALS

signal number	latitude	longitude	Abbreviated name of Station	source
018	14 18 2311	170 41 0014	whp	Photo Located by Office Personnel on T Sheet PH6811
019	14 18 1365	170 40 5471	wop	PLOP
020	14 18 1748	170 40 4368	pil	Horizontal Control Data
022	14 18 1364	170 40 3854	whp	PLOP
024	14 18 0066	170 40 3241	owp	PLOP
025	14 17 5459	170 40 4149	pol	PLOP
028	14 17 4239	170 40 5326	orp	PLOP
032	14 17 2555	170 40 3155	bpt	HCD
033	14 17 2172	170 40 2846	pir	Photo Located by Ship Personnel on T Sheet PH 6811
034	14 17 1455	170 40 4915	vai	HCD
036	14 17 0040	170 41 0283	fwt	HCD
038	14 16 5445	170 40 4134	gib	HCD
040	14 16 5590	170 40 5417	man	HCD
041	14 16 5225	170 40 5338	pir	PLOP
042	14 16 5647	170 41 1927	pul	HCD
043	14 16 4598	170 41 4113	pol	PLSP
044	14 16 5263	170 41 0637	pir	PLSP
045	14 16 4119	170 42 0061	res	PLSP
046	14 16 3253	170 42 0049	chr	PLSP
048	14 16 3384	170 41 4363	fos	HCD
049	14 16 3323	170 41 3157	stk	Sextant Cut from Horizontal Control Data
050	14 16 3322	170 41 3184	sla	HCD
051	14 16 3267	170 41 1304	stk	SC
052	14 16 3273	170 41 1322	stk	HCD
056	14 16 2535	170 40 5455	mar	HCD
058	14 16 2016	170 40 2473	rrn	HCD
059	14 16 2615	170 40 2274	frn	HCD
060	14 16 3040	170 40 0455	lea	HCD
064	14 17 0981	170 39 5032	sos	HCD
066	14 17 4101	170 39 4470	bpl	HCD
069	14 16 3401	170 39 1023	pio	HCD
070	14 17 4032	170 39 2315	lau	HCD
071	14 17 2809	170 38 2071	lig	Sextant & Tape Traverse from Horizontal Control Data
072	14 17 3811	170 39 0090	faa	Tellurometer Traverse from Horizontal Control Data

VELOCITY CORRECTION COMPUTATION

NANSEN CAST 7April 71

Transducer depth = 0.5 fathom

layer thickness fathoms	mid-depth each layer fathoms	Temperature °C	Salinity ‰	layer velocity table #14 meter/sec	table #15	table #16	layer velocity meters/sec	correction factor	layer correction fathoms	depth correction fathoms	applicable depth fathoms
4.5	2.75	28.75	34.773	1540.4	-0.2	0	1540.2	+0.05277	+0.24	+0.24	5
5	7.5	28.72	34.775	1540.3	-0.2	+0.2	1540.3	+0.05283	+0.26	+0.50	10
5	12.5	28.70	34.785	1540.3	-0.2	+0.4	1540.5	+0.05297	+0.26	+0.76	15
5	17.5	28.69	34.795	1540.3	-0.2	+0.6	1540.7	+0.05311	+0.27	+1.03	20
5	22.5	28.68	34.805	1540.2	-0.2	+0.7	1540.7	+0.05311	+0.27	+1.30	25
5	27.5	28.68	34.825	1540.2	-0.2	+0.9	1540.9	+0.05324	+0.27	+1.57	30
5	32.5	28.67	34.905	1540.2	-0.1	+1.0	1541.1	+0.05338	+0.27	+1.84	35
5	37.5	28.66	35.035	1540.2	0	+1.2	1541.4	+0.05358	+0.27	+2.11	40
5	42.5	28.64	35.225	1540.1	+0.2	+1.4	1541.5	+0.05365	+0.27	+2.38	45
5	47.5	28.53	35.425	1539.9	+0.4	+1.5	1541.8	+0.05385	+0.27	+2.65	50
5	52.5	28.42	35.545	1539.6	+0.5	+1.7	1541.8	+0.05385	+0.27	+2.92	55
5	57.5	28.17	35.655	1539.1	+0.6	+1.8	1541.5	+0.05365	+0.27	+3.19	60
5	62.5	27.65	35.740	1537.9	+0.8	+2.0	1540.7	+0.05311	+0.27	+3.46	65
5	67.5	27.10	35.815	1536.7	+0.8	+2.2	1539.7	+0.05242	+0.26	+3.72	70
5	72.5	26.55	35.870	1535.4	+0.8	+2.3	1538.5	+0.05161	+0.26	+3.98	75
5	77.5	26.00	35.905	1534.1	+0.9	+2.5	1537.5	+0.05092	+0.25	+4.23	80
5	82.5	25.40	35.930	1532.7	+1.0	+2.7	1536.4	+0.05017	+0.25	+4.48	85
5	87.5	24.85	35.930	1531.3	+1.0	+2.8	1535.1	+0.04928	+0.25	+4.73	90
5	92.5	24.30	35.930	1530.0	+1.0	+3.0	1534.0	+0.04853	+0.24	+4.97	95
5	97.5	23.75	35.935	1528.6	+1.0	+3.2	1532.8	+0.04771	+0.24	+5.21	100
20	110.0	22.38	35.935	1525.1	+1.0	+3.6	1529.7	+0.04559	+0.91	+6.12	120

- from Nansen Data

from BT Data ↑	20	130	20.0		1518.7	Neglect	4	1523	+0.04101	+0.8	+6.9	140
	20	150	18.3		1513.9		5	1519	+0.03828	+0.8	+7.7	160
	20	170	16.1		1507.2		6	1513	+0.03418 ~~+0.03008~~	+0.7	+8.4	180
	20	190	13.9		1500.2		7	1507	+0.03008	+0.7	+9.1	200
	200	300	8.3		1480.3		10	1490	+0.01846	+3.7	+12.8	400

Form No. 100-5

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET = FATHOMS

VELOCITY CORRECTIONS

U.S. Coast and Geodetic Survey

Ship SURVEYOR (OSS 32)

A.R. BENTON, JR. Comdg.

These corrections are to be used

between 19 and 19

in the locality

for hydrographic surveys Nos.

DEPTHS IN FATHOMS

(For deep water add 0 to these figures)

Checked by F. Jones

B-1736-5

LAUNCH # 3

OPR 497

LAUNCH HYDRO 1971

PAGO PAGO

AMERICAN SAMOA

TRA CORRECTION/TABLE INDICATOR (TC/TI) PRINTOUT

SU-5-1-71

321 081 1971

TIME		TRA	VEL TAB	JD		
080000	0	1010	0001	081	000000	000000

LAUNCH # 4

OPR 497

LAUNCH HYDRO 1971

PAGO PAGO

AMERICAN SAMOA

TRA CORRECTION/TABLE INDICATOR (TC/TI) PRINTOUT

SU 5-1-71

321 105 1971

TIME		TRA	VEL TAB	JD		
080000	0	1014	0001	105	000000	000000

OPR 497

LAUNCH HYDRO 1971

PAGO PAGO

AMERICAN SAMOA

VELOCITY CORRECTION PRINTOUT

SU-5-1-71

DEPTH		VEL CORRN	VEL TAB			
000040	0	0000	0001	000	000000	000000
000065	0	0002				
000090	0	0004				
000120	0	0006				
000150	0	0008				
000182	0	0010				
000214	0	0012				
000250	0	0014				
000287	0	0016				
000324	0	0018				
000361	0	0020				
000398	0	0022				
000435	0	0024				
000472	0	0026				
000509	0	0028				
000546	0	0030				
000583	0	0032				
000620	0	0034				
000657	0	0036				
000694	0	0038				
000760	0	0040				
000852	0	0045				
000945	0	0050				
001038	0	0055				
001140	0	0060				
001232	0	0065				
001327	0	0070				
001422	0	0075				
001517	0	0080				
001612	0	0085				
001800	0	0090				
001987	0	0100				
002174	0	0110				
002362	0	0120				
002550	0	0130				
002737	0	0140				